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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/847,746 | 05/01/2001 | Robert Bartola | 257/267 | 6090 |

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EXAMINER

DATSKOVSKIY, MICHAEL V

ART UNIT PAPER NUMBER

2835

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/847,746

Applicant(s)

BARTOLA ET AL.

Examiner

Michael Datskovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 12-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 12-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

1. Claims 13, 17, 25 and 28 are objected to because of the following informalities: Claims recite that the assembly of claims 12 and 24 respectively further comprises a heat sink, while in the claims 12 and 24 said heat sink has been already indirectly claimed, by claiming that the coolant circulation loop is in fluid communication with the heat sink lumen. Claims 17 and 28 claim a coolant being a gas, while in the claims 12 and 24 it is claimed that the coolant circulation loop is in fluid communication with the heat sink lumen. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
3. Claims 19-20, 22, 30-31 and 33 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. The invention is different from what is defined in the claims because they claim that a portion of a cooling channel is formed by a surface of a heat generating device, while according to the specification it is formed by a surface of a flange located under said heat generating device.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 12-17, 18, 23, 24-28, 29 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Batchelder.

Batchelder teaches an assembly, Fig.3, comprising: a plurality of heat generating devices 2 attached to a multiplayer printed circuit board 20, and a thermal management system comprising a heat sink 28 having an interior lumen 50; a pump 54 arranged for circulating a coolant through a channel, and a coolant circulation channel loop, wherein one part of the loop (60) is formed in a layer of the PCB 20, and the coolant circulation channel loop 60 is being in fluid communication with the heat sink 28 lumen 50, and wherein a portion of the coolant cooling channel in a vicinity of each mounting area of said heat generating devices. Regarding to the claims 15, 16 and 26, 27: Claimed methods of making said PCB cooling channels (removing of portions of one or more layers – claims 15 and 26, or coinciding vias located in adjacent layers of the PCB – claims 16, 27) has not been taken in the consideration, because it is well settled that the presence of process limitations in product claims, which product does not otherwise distinguish over the prior art, cannot impart patentability to that product. (In re Johnson, 157 USPQ 670, 1968). Regarding to the claims 17 and 28: Because, as it was

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mentioned above, in the claims 12 and 24 it is claimed that the coolant circulation loop is in fluid communication with the heat sink lumen, examiner assumes that part of said liquid can be evaporated to become a gas, which does not make any differences to the structure of the claimed assembly.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21 and 32 as best understood by the examiner are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder.

Batchelder teaches all the limitations of the claims except said heat generating elements are transistors. It would have been an obvious matter of design choice to employ a cooling system shown by Batchelder to cool transistors, since applicant has not disclosed that a type of heat generating devices solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any kind of heat generating electronic devices.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reichard (US Patent 5,316,077); Hamilton et al (US Patent 5,901,037) and Hamilton et al (US Patent 5,763,951) all of them being applicable for the rejection of the at least claims 12-14 and 24-25 of the instant application.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Datskovsky whose telephone number is (703) 306-4535. The examiner can normally be reached on Mn - Fry 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (703) 308-4815. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Patent Examiner

Michael Datskovsky

A handwritten signature in cursive script, appearing to read "Michael Datskovsky", written in dark ink.

July 1, 2003